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THE GRANBY
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BOOK

A Lino Cut, with Title Inset in Type

PRINTING

BY

E. G. PORTER

PREFACE

As this little book is intended for the amateur printer, it is probable that many of the hints and suggestions it contains will cause any practical printer who may happen to read it to smile—let us hope indulgently. But let it be remembered that the means of the amateur are often very limited, and that half the pleasure of any hobby may arise from this seeming disadvantage, for it offers great scope for ingenuity in surmounting obstacles, and can give an immense amount of pleasure and pride in the production of work with a minimum of expense and a maximum of skill and perseverance.

In the view of a great many, spare time cannot be more enjoyably utilized than with a few tools and a book of instructions, and as few hobbies entail less running expense than printing, or show more practical results, its value need hardly be stressed.

The handyman will enjoy using the printing machine, discover its wonderful capabilities, and will often print things just for the sake of the job itself; while for a large number of people the hand-press will be of great service in the production of programmes, circulars, and other printed notices that are so often prepared with such labour and disappointing results on typewriter, cyclostyle or hectograph.

The advantage of the printing machine lies in its capacity to reproduce numberless and identical copies, and in its perfection; and while the former quality will appeal to many busy people, such as secretaries of clubs

or other associations, it is the latter that will attract the youth or adult who devotes his spare time to hobbies of various kinds. So few of us are artistic penmen, and how often we wish that our collection of coins, butterflies, or what not, were adorned with printed labels!

Thus printing may not only be a hobby in itself but an adjunct to many other occupations; and to those who would like to take up the work in any way whatsoever this volume is dedicated, in the hope that the practical sections may serve to make easy the more mechanical processes of printing, and that the suggestions may lead to individual exploration of the means and ends of this fascinating hobby.

The author wishes to thank Miss Margaret Dobson, A.R.E., for permission to use the lino blocks Figs. 39, 40, 42, and 43; and Mr. F. J. Major for the use of the lino block Fig. 36, and the zinc etchings Figs. 33 and 50.

<div align="right">E. G. P.</div>

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CHAPTER I

INTRODUCTORY

" OF this noble art, which is like an infinitely intensated organ of Speech, whereby the Voice of a small transitory man may reach not only through earthly space, but through all earthly Time, it were needless to repeat the often-repeated praises; or speculate on the practical effects, the most momentous of which are, perhaps, but now becoming visible."

So wrote Carlyle on the invention of printing, one of the greatest events in the history of civilized man, and it is Gutenberg's name that is associated with this revolution. He it was who first made type and thus abolished the immense labour of the scriptorium, and afforded the lay writer an equal opportunity with the cleric of reaching a multitudinous public.

Like other inventions, that of printing was not the work of one man only but seems to have been the subject of experiment in several centres, notably Holland, where Laurens Coster was printing from movable type at about 1446. This activity was largely due to the manufacture of paper, an invention that had travelled from China to Arabia and thence to Europe, although it was not until the end of the fourteenth century that it was produced in Germany in sufficient

quantities to make book production a practicable proposition.

Gutenberg was born at Mainz about 1400, but long before this date impressions had been taken in Europe from carved blocks of wood, and the ancient Chinese had also utilized this method of reproduction. The difficulty that had to be overcome was the manufacture of separate letters which could be placed together and held firmly in a frame so that several hundred words could be printed at a time. Each letter had to be a standard size, and Gutenberg experimented in secret for years before achieving success. He made a set of moulds which, when filled with molten metal, would form quadrats with a raised letter at one end.

He probably adapted the printers' oil colours as a printing ink, which is a mixture of colouring matter and varnish, and all the early printers inked their type by hand with a pad or ball. The early printing presses were merely adaptations of the wooden linen press, and a very great proportion of the printer's time was occupied in working this cumbersome apparatus. Thus, having none of the modern appliances, such as composing sticks, iron chases, and imposing stones, and having to make their types, as well as set them up, and print from them in the primitive presses, it is wonderful what the early printers produced both in style and in quantity.

The first complete book known to us is the Mazarin Bible (so called because it was discovered in the library of Cardinal Mazarin), a work of 1,764 pages which probably took Gutenberg about three years to produce, and was finished about 1456. Six years later the city of Mainz was besieged and sacked, and its printers

were dispersed, so that in a short time presses were established in more than two hundred places in Europe. William Caxton brought type from Bruges and set up a press at Westminster, and in 1477 the first book in this country was published--*The Dictes and Sayings of the Philosophers*.

In the early books there was no definite system of printing, and lines were just filled up with type so that the words at the ends were often broken up without regard to syllables. There were often no titles, no chapter headings, and no paragraphs, and the use of punctuation marks and capitals was most irregular. To-day the real art of printing is in the arrangement of letterpress and illustration, and the amateur printer should carefully examine well printed notices, pro-grammes, books, etc., in order that he may have a standard by which to judge his own work.

Much of the beauty of the modern printing is due to the wonderful improvements that have taken place in all branches of the work—type, ink, press, and paper. Mechanical improvements of the printing machine were greatest at the beginning of the nineteenth century. In 1811 Bryan Donkin invented the composition roller for inking the type, the mixture of glue and treacle which he used being so admirably suited for the purpose that it is still almost universally in use.

The press itself had been made much more mechanical in 1507, but up to the middle of the eighteenth century the screw was still used to obtain the pressure, and even when the lever was introduced two men could only produce about two hundred and fifty copies an hour.

In 1810 the first modern printing machine was

constructed by Frederick Koenig, and this was elabo-
rated so that a steam press in 1814 could turn out a
thousand impressions an hour ; a number that has been
gradually increased up to the present day, when over a
hundred thousand newspapers can be printed, folded,
and pasted in an hour.

Type is now made to standard sizes by machinery
with great rapidity and great accuracy. Most metals
contract in solidifying, and thus not only become
smaller than the matrix into which they are poured
but slightly disfigured, and the problem of the type
founder was to discover some alloy that would expand
and thus form a perfectly sharp and accurate cast.
A mixture of lead, antimony, and tin was found to be
a perfect type metal, and is the alloy used at the
present time.

The type is cast on a body approximately fifteen-
sixteenths of an inch in height—equal to the diameter of
a shilling. It has two or more nicks in its lower edge
to enable the compositor to tell easily which way up
the letter should be placed, and it stands on two feet.
(See Fig. 1.) While all the letters are of standard
height and depth, their widths vary according to their
shape. Thus the *l* and *i* are very narrow, while the *w*
and *m* are wide, being in fact as wide as they are deep,
and cast on a square base. The " em " is used as a
standard, and the quads (big spaces) are two, three
or four " ems " long, while the spaces are halves, thirds,
quarters, or fifths of an " em " space.

The old sizes of type were given names such as
" Brevier," " Long Primer," and " Pica." Six lines of
the latter occupied one inch of vertical space. " Pica "
was adapted as a standard size, and was divided into

twelve parts called " points." There are thus seventy-two points to the inch, and now all type is measured by this system.

A complete fount of type contains full-sized capitals, small capitals, small letters, figures, punctuation marks, various signs, and spaces of various sizes (the larger of which are called quads). The small capitals are not
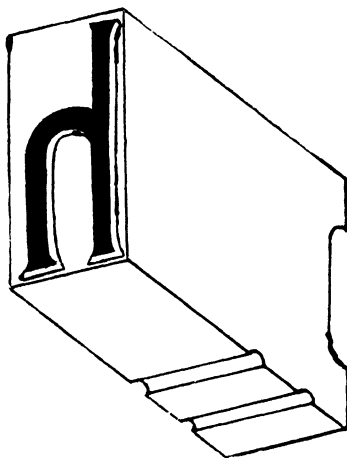
FIG. 1. A TYPE

generally included in small founts, but may be purchased separately, this being the case also with fractions, accented letters, and such signs as the asterisk, per cent, etc., which are not required in ordinary work.

The fount does not consist of the letters in equal numbers, but is made up according to the general requirements of the language. Thus the letter e occurs most often, and is, therefore, most numerous, while the letter z is rarely required and thus is numerically small.

Here is a fount of 10-point italic (Fig. 2)—

*aaaaaaaaaaaa bbbbbb ccccc ddddddd eeeeeeeeeeeeee
e ffffff gggggg hhhhhhh iiiiiiiiii jjjkkkllllllmmmmm
mnnnnnnnnnnn ooooooooooo ppppppp qq rrrrrrrrrr ss
sssssssss tttttttttt uuuuuuu vvvvv wwwwwww xxxxyyyy
yyzzzæ fiffffflfflffi11122334455667788990000,,,,,,,, ...
....,;;;;,::::---'''''))]]??!!£//AAAABBBCCCDDDEE
EEEEFFFGGGGGGGHHHHIIIIJJKKLLLMMM
NNNNOOOOPPPPQQRRRRSSSSSTTTTUUUV
VVWWWXXYYYZZ&*

FIG. 2. A ONE POUND FOUNT OF 10 PT. ITALIC

Small founts are listed in the manufacturer's cata-
logues according to the number they contain of the
first letter. Thus the above is a 4 A 12 a fount, and such
a system affords a handy guide to the purchaser.

CHAPTER II

FOR the benefit of readers who know nothing of the craft of printing it would be as well here to outline briefly the method of setting up type and taking an impression.

The type, placed conveniently before the operator, is arranged in shallow cases or trays. The letters are taken up one at a time and placed in a composing stick, and when a few lines have thus been set up they are transferred to a galley. Other lines are then prepared and added to these, and when the whole matter, or enough to fill a page of pre-arranged size, has been thus arranged, it is placed in an iron frame, in which the whole body of type may be securely wedged and handled with safety. This frame—*chase* is its proper name—is then put in the printing machine, which has a roller to ink the type, and a platen, on which the paper is placed and by which it is brought into contact with the type. By means of a lever this platen is pressed firmly against the type so that a clean and full impression may be obtained.

Of the materials required for printing, some, such as the press and the type, must be purchased; but many may be made by the handy person who is prepared to exercise great care in their preparation, for it is as well to state here that the elements of success in printing are forethought and precision in working. The reader will be well advised to study the catalogues

of manufacturers of printing machines, type, and accessories, and to note the prices of all the articles mentioned in this chapter; and then to determine to make all that he can in order to save his money for extra type, ornaments, and borders.

THE MACHINE. This has a bed on which the chase is placed, an ink plate from which the type is inked by means of a roller that passes from plate to type, and a steel platen which is operated by means of a lever. This platen is covered with sheets of paper or card, on which the paper to be printed is placed. This paper rests on two pins and is held in position by two gripper fingers. When the platen is back there is a gap between it and the grippers, but as the platen is lowered on to the type these fingers come forward automatically and hold the paper firmly. In expensive machines the type bed is vertical, and there is a mechanism for keeping the ink evenly distributed, but with the cheap "Adana" models the type bed is horizontal and the mechanism is naturally not so complicated, so that perfect printing is more dependent on the care of the operator. However, most of the illustrations for this book were first prepared on a 45s. "Adana" machine, which will print a type surface of 6 in. by 4 in., a size quite large enough for the amateur to handle. In fact he would be ill-advised to try to work even to this size until he has had some experience with smaller work, which may, of course, be done on the same or any similar machine.

TYPE. The type required will necessarily depend on the style of work which the reader proposes to do, but it would be as well at first if he limited himself to a small amount of a kind and size that will be generally useful. It is sold by weight, as are the spaces to go

with it, and in order to use various types together in one line they must be of one size. From the immense variety to be found in the type founders' catalogues we suggest starting with any or all of those listed on page 10.

SPACES AND QUADS. These are made as accurately as the type itself, but do not stand so high and thus do not print. The spaces are in five sizes : *em, en, thick, middle,* and *thin.* The quads are in three sizes : *two ems, three ems,* and *four ems*; they are used for filling up spaces at the ends of paragraphs, etc.

LEADS are thin strips of metal which may be placed between lines of type in order to spread the matter out.

BRASS RULE is type-high, and is used when a line is required under a title, for printing lined forms, etc. ; and strips of it are placed on each side of the type in order to lift it from the composing stick to the galley. Rule may have a plain or fancy edge, and the plain generally has one edge thick and the other thin so that either may be used as required.

REGLET AND FURNITURE. Between the chase and the type there is placed a certain amount of solid strip wood known as furniture. Thin strip, called reglet, is useful for inserting under a title or between lines that have to be some distance apart. It serves the same purpose as leads, but occupies more space and is less weighty. It must be made with perfect accuracy and is best purchased.

THE CHASE is the iron frame in which the type is locked, and as it may be convenient to keep certain work locked up for a time so that it may be reprinted without being reset, it would be as well to have several of these.

QUOINS are the wedges with which the type is secured in the chase. As they must be of uniform pattern they also had better be purchased.

Here is a suggestive list with approximate prices that will serve as a guide to what will be required—

Machine and two chases—price according to make chosen.

	s.	d.
1 lb. 10 pt. Old Style type (6 A 15 a)	3	–
1 ,, ,, ,, Italic (4 A 12 a)	1	6
1 ,, ,, Cheltenham Bold (4 A 12 a)	3	1
1 ,, ,, Quads		5½
1 ,, ,, Spaces		9
2 lb. 12 pt. Old Style (8 A 22 a)	5	6
1 ,, ,, Cheltenham Bold (7 A)	2	11
1 ,, ,, Quads		5
1 ,, ,, Spaces		8
1 length Brass Rule, 1½ pt., fine face		5
1 ,, ,, ,, ,, dotted		7
1 ,, Reglet, 6 pt.		1½
1 ,, ,, 12 pt.		1½
1 ,, ,, 18 pt.		2
2 lengths Furniture, 24 pt.		7
1 Hand Roller (for inking machine)		9
¼ lb. Ink		9
1 packet of 25 Small Quoins		6

We now come to the articles that can be made at home, and they are as follows—

TYPE CASES. Each fount of type should be kept in proper order in its own case and, as such cases or shallow trays are not at all difficult to construct, it is by far the best plan to start straightway with ones of a professional pattern in which the letters are not arranged alphabetically but for general convenience in composing. All the cases should be kept together in a rack so they should be of standard size, and 12 in. by 9 in. will be found very suitable dimensions. There are really

two cases to a fount, an " upper case " for capitals, and a " lower case " for small letters; but the following arrangement will be found very suitable for the amateur. It will be seen that two trays are used with their

A	B	C	D	E	F	G	X	Y	Z	Æ	Œ	U	J
H	I	K	L	M	N	O	1	2	3	4	5	6	7
P	Q	R	S	T	V	W	8	9	0	£	&	/	,,
k	:	æ	œ	;	j	e	.	? !	—	[ ]	( )	fi	
z	b	c	d				i	s	f	g	ff	ffi		
											fl	ffl		
x	l	m	n	h			o	y p	w	,	en spaces	em spaces		
q	v	u	, t	thick spaces			a	r	mid. spaces	thin spaces	quads			

FIG. 3 TWO TRAYS FOR A SMALL FOUNT

longer sides adjacent, and the capitals occupy the top parts of these. (Fig. 3.)

For the 12 point Cheltenham bold, which has no small letters at present, an upper case may be made thus (Fig. 4), and for leads, brass rule, etc., a tray may be constructed with larger divisions.

The bottoms of these trays should be of three-ply wood, and firmly glued and nailed to the sides, which should be an inch high. It is important to construct these strongly as they have to support a considerable weight. The divisional strips may be made from the 3 ft. thin laths sold at most general shops for a penny

or two each. As their only purpose is to keep the
various letters separated they should be as thin as
possible in order to save space, but they must be fitted

A	B	C	D	E	F	G
H	I	K	L	M	N	O
P	Q	R	S	T	V	W
X	Y	Z	Æ	Œ	U	J
1	2	3	4	5	6	7
8	9	0	£			

FIG 4. AN UPPER CASE

so that they touch everywhere the bottom of the case
or thin type will pass underneath the divisions.

The drawings are to scale so that the actual dimen-
sions may easily be worked out, and several similar
strips should be cut together as in Fig. 5. When all
the pieces have been prepared they should be fitted
together by the half cuts and a touch of glue put on
the bottom edges when putting them in place.

It will be noticed that in the " upper case " the
divisions are equal and the letters are in alphabetical

order except for U and J, which are comparatively new letters, and are not found in some fancy type and in Gothic and its varieties. In the " lower case," however, the letters are arranged according to importance, so that those that most often come together in common words are in adjacent divisions. This is known as the " Lay of the Case," and, while not rigid in its details, has remained the same for over a hundred years. The one illustrated has been slightly altered from that usually given in the textbooks, and the reader may of course further re-arrange it if he wishes to do so. The
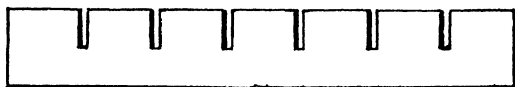
FIG. 5

important point, is to see that all the cases are arranged in the same manner, for one soon gets used to the lay and picks out the letters automatically. For a large fount suitable for printing· a magazine a larger case will be required, but in order to keep the trays the same size the writer has arranged three as in Fig. 6.

A RACK in which to store the cases will make them much easier to get at, and a simple one may be made by cutting enough 12 in. lengths of wood 1½ in. by 1 in. to form the number of shelves required and fixing them together as in Fig. 7. Three cross pieces of lath 10¼ in. long are fastened across a pair of the·12 in. pieces of wood so that they stand on their narrower edges as at A. Several of these are then placed one on top of the other and fastened by means of four upright pieces of lath, one at each end of the sides. A strip of wood

Upper-case tray

A	B	C	D	E	F	G
H	I	K	L	M	N	O
P	Q	R	S	T	V	W
X	Y	Z	Æ	Œ	U	J
1	2	3	4	5	6	7
8	9	0	£	&	/	"

Lower-case tray (letters)

k	:	æ œ	; j	e		h		thick spaces
z	b	c	d					
x	l	m	n					
q	v	u	t					

Lower-case tray (ligatures, points, and spaces)

.	?	!	—	|	[]	0	fl
i	s		f	f	g	ff	ffi
o	y	p	w		,	fi	ffl
a		r	mid. spaces / thin spaces			en spaces / spaces	em spaces / spaces
						quads	

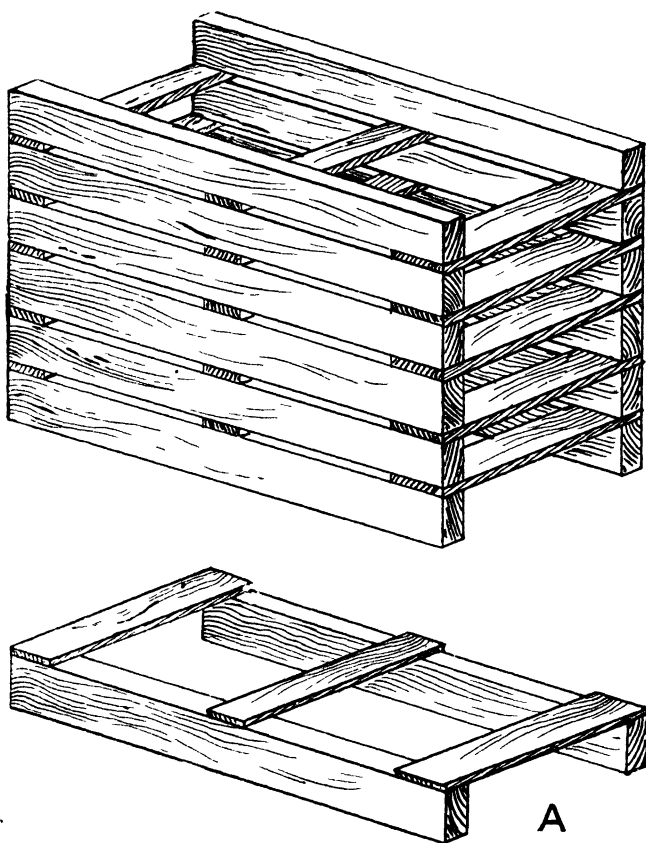FIG. 6. THREE TRAYS FOR A LARGE FOUNT OF TYPE

FIG. 7. A RACK FOR TYPE CASES

fastened diagonally across the back will prevent the trays from going in too far.

The printing press should be screwed firmly on to a low table or bench, or a rigid packing case will serve admirably for this purpose, and if it is to remain in a

permanent position the rack and its cases may be stored inside this case and a shelf also fixed, on which to store the ink, composing stick, galleys, and other apparatus.

COMPOSING STICK. The compositor's stick is rather costly, and is made so that one end is movable in order that lines of any length may be set up. This is, however, hardly necessary for the amateur, and the use of a fixed stick of wood will not only save this initial expense but will save expense in the matter of leads
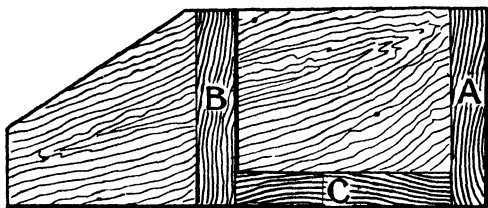

FIG. 8. A COMPOSING STICK

and furniture, for these may all be cut to one standard length and use for any jobs. For ordinary work a line of 3 in. will be quite long enough, and the stick may be made for this in the following way. True up three pieces of wood 3 in. long and $\frac{7}{8}$ in. square; the harder the wood the better. They must be perfectly square, and one at least must be *exactly* 3 in. long. They are then glued and screwed on to a three-ply wood base as in Fig. 8. The corners must be exactly square, and the distance from A to B must be exact at both top and bottom. In order to ensure this make a couple of spare blocks $\frac{13}{16}$ in. square and 3 in. long. Then, when A and C have been fixed to the base, place these two pieces as a gauge by which B may be fixed. To test the

accuracy of the work place six 3 em 12 point quads in
the stick, where they should fit snugly between *A*
and *B*; there should be no looseness whatever, but
they must not be so tight as to make it difficult to
move them. If this test shows any fault in the stick
discard it and make another. Keep the two gauge
pieces, which will serve another purpose later. (See
page 35.)

THE GALLEY is made in a similar manner to the
stick, but large enough to contain the chase, which
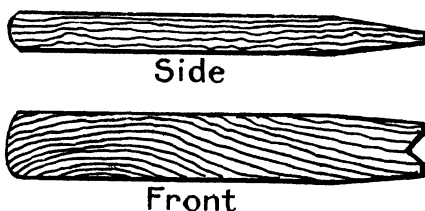
Fig. 9. The Shooting Stick

must lie in it loosely. Measure the chase (outside
dimensions) and make a three-sided tray, with inch-
square wood and a piece of three-ply wood, that will
take it with about $\frac{1}{8}$ in. play. (See Fig. 15.) Two or
three of these will be useful, for if it is required to keep
a chase in which type is locked it may be placed in a
spare galley and stored in perfect safety.

THE SHOOTING STICK is merely a piece of wood
shaped as in Fig. 9. It is used for tightening and
loosening the quoins, the nick being placed on the end
of the wedge, while the other end of the stick is tapped
with the hammer.

IMPOSING SURFACE AND PLANER. When the type
is complete in the chase it is placed on a perfectly plane

and hard surface, and a piece of flat wood is placed on top of the type and gently tapped so that every piece of type is knocked down to a dead level. It is thus of great importance to see that the imposing surface is perfectly flat and even, and a good piece of plate glass or mirror about 8 in. by 6 in. can probably be obtained for a few pence from a local dealer, and this will serve admirably. Ordinary sheet glass will not do as its surface is not dead level. A piece of mahogany or other fairly hard wood of the same size, about 1 in. thick,
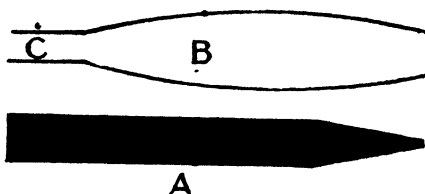
FIG. 10. TWEEZERS

will serve for a planer if care is taken to get one side of it perfectly flat.

TOOLS. A small tenon saw for cutting the reglet and furniture, a small pair of shears for cutting the leads and brass, and a hammer or mallet will be required. Tweezers and a bodkin will also be wanted and may be either bought or made. To make the tweezers cut two pieces of firm brass to the shape of Fig. 10, *A*, about 4 in. long, and bend them so that they will look like *B* from a side view. Tin the inner surfaces at *C*, grip them together firmly in a pair of pincers, and hold them over a bunsen burner so that they become well soldered together. Now finish them off with file and emery paper, making sure that the points are fine enough to pick out type and spaces as necessary. The bodkins

may easily be made from fine knitting needles; a piece about 3 in. long being fitted into an improvised handle and then ground to a fine point.

ADDITIONAL MATERIAL

Having obtained some of the type mentioned on page 10, the reader will be able to produce most of the work suggested in the following pages. It will be noticed, however, that a good many of the examples contain several kinds of type and ornaments not yet
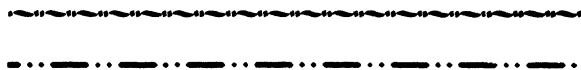
FIG. 11. FANCY RULE

mentioned, and these, while not absolutely necessary, will be found of great service; and no doubt the enthusiast will purchase many coveted additions to his stock as his work progresses.

Let us consider ornamentation of various kinds first.

FANCY BRASS RULE. With the rule already obtained we have a choice of thin line, thick line, and dotted line, but various fancy lines may also be purchased and will add variety to the work in the manner illustrated in the next chapter. Fig. 11 shows two varieties of $1\frac{1}{2}$ point, which will be the best size to get as it may be used with the leads already obtained.

ORNAMENTS of various sorts serve to illuminate a title or to form a tail piece, and here again (as with brass rule) much trouble will be saved if we confine ourselves to ornaments of the same size as the material we already possess. Thus an ornament in 10 or 12 point

on each side of a title can be fitted in the line as it is
composed, or as a tail piece it may be set up centrally in
a row of similarly sized quads without any bother at
all, whereas if ornaments of 8 or 16 point are purchased
it will be necessary to obtain spaces of the same size or
to pack up either type or ornament to a similar width.

A BORDER is made up of brass rule or of type. In the
former case there will be some trouble with the corners,

FIG. 12. VARIOUS ARRANGEMENTS OF BORDER
ORNAMENT

and these should really be mitred or a set of mitred
corners purchased. Border type is generally made on
a square base and may be arranged in many ways by
the use of " em " spaces of the same size. Thus the
little 10 point ornament in Fig. 12 may be arranged in
a row, a double row, or a double row with the lower
line shifted along an " en " space. It may be set as a
row alternate with any sized space, or in two rows in
a similar manner, or in three rows. The reader will get
much pleasure in working out some of the many com-
binations himself, and need rarely repeat the same
pattern in his productions.

LINE BLOCKS serve a very useful purpose for special

occasions. The one of the footballer (Fig. 13) would be very suitable for a list of Sports Fixtures, or for heading a sports article in a School or Boy Scouts' magazine; others may be obtained for Dance Programmes, Whist Drives, Socials, etc., or for business

FIG. 13. A LINE BLOCK

purposes—such as a bee-hive, a basket of eggs, telephone, bicycle, and so on.

The artistic reader will also be able to produce his own illustrations by means of lino blocks at trifling expense, but this is dealt with more fully in a later chapter.

TYPE. If a further variety of type is required the reader may make his own choice from the catalogues. The founts already mentioned contain capitals and small letters, but to these founts may be added a set of small capitals, such as may be observed in the first

word of each chapter in this book. Some type founders produce miniature founts of small and fancy type very cheaply, and as these will include spaces also they may be purchased in any size and used without trouble or the expense of buying a large quantity of spaces to go with them. If the reader requires to print labels, etc., with rather large type he will find a pound of 18 point Cheltenham Bold suitable for the purpose.

INK of various colours may be obtained in small tins or tubes for a few pence, so that those who wish to indulge in colour printing may do so if they are careful to clean the printing machine thoroughly before altering the ink.

There is little use in giving a tabulated list of these extras as each reader will please himself as to what style of type and ornaments he adds to the general stock, and the illustrations which follow are not meant to be copied in detail, but are given merely as suggestions and may be altered in any way to suit the materials and taste of the individual.

CHAPTER III

WHEN the type cases have been made and the type has arrived from the makers it must be carefully unpacked and distributed. It will be found packed in proper order in boxes and must not be disarranged or hours will be wasted in sorting it out again. Mixed type is called " pie," and must be avoided at all costs. A pound of type is packed as in Fig. 2.

With the type cases conveniently before you, and marked according to Fig. 3, take the box of type in the left hand and then lift out the a's and place them in their proper position in the lower case. Thus proceed with the other letters, signs, and figures, placing the commas in the lower case and the apostrophes in the upper case. If you have obtained the three founts of 10 point type as suggested, the quads may be roughly divided between them, and the spaces also. The quads are not sorted according to size, but the spaces should be. The " em " and " en " spaces are easily picked out, but the thick, middle, and thin spaces require more care. The easiest way of sorting them is to place them on a sheet of glass and run the tip of the finger over them, when the slight differences in thickness will easily be discovered.   ·

Now take a piece of fine face brass rule and from it cut off two lengths of 3 in., so that they will just fit into the composing stick without being either too tight or too loose. Cut up about half the lead strips in the same

way, being most careful to cut each piece to an exact length so that it will just slip into the stick without jamming.

From the furniture cut off two 6 in. lengths, and two similar pieces from the 18 point reglet, and cut up the rest of the furniture into 3 in. lengths that will fit easily into the stick. Two or three pieces may also be cut from each size of reglet to the 3 in. length, and if all

10 pt. Old Style.

10 PT. OLD STYLE SMALL CAPS

10 pt. Cheltenham Bold.

10 pt. Old Style Italic.

12 pt. Old Style.

12 pt. Cheltenham Bold

6 pt. Old Style.

12 pt. De Vinne.

18 pt. Chelt. Bold.

FIG. 14. SPECIMENS OF VARIOUS TYPES

the wood, brass, and lead that has been cut is placed in the tray made for this purpose, the remainder may be stored away for future requirements.

Everything is now ready for use and we may start with a first experiment in printing, choosing as example some labels to gum on the fronts of the type cases (Fig. 14).

First of all place a chase in the galley and arrange three pieces of furniture in it as in Fig. 15. Then get an odd piece of glass or marble, or an old slate, and on it put a little ink (about the size of a small pea), and

roll it out evenly with the small hand roller so that
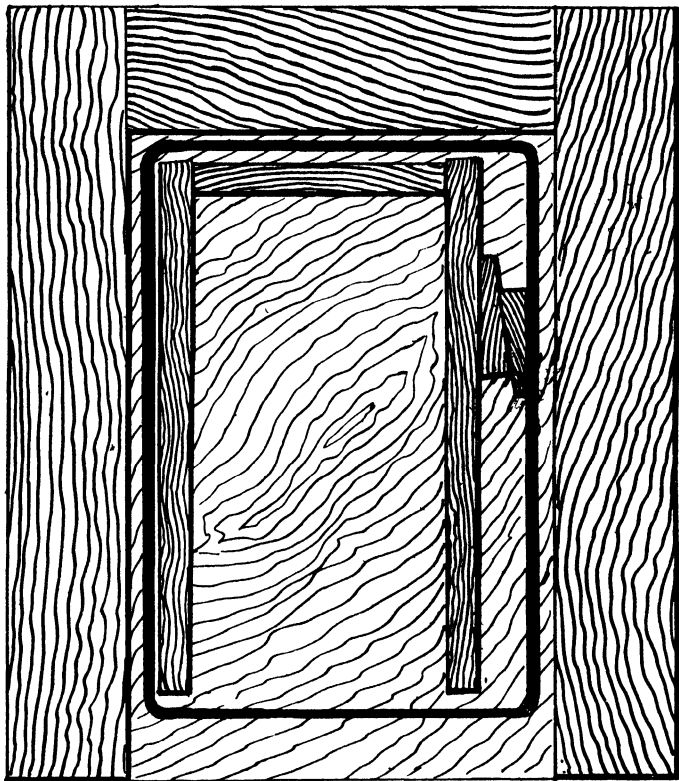there is a very thin even surface on glass and roller.

FIG. 15. GALLEY WITH CHASE AND FURNITURE IN
POSITION

Now take the composing stick in the left hand, and,
holding it nearly upright, place a piece of brass rule
on C (Fig. 8). On this brass rule the type is placed

with the nicks upward and the face of the type towards the compositor. The words will read from left to right but will all be *upside down*. Thus we take (for the first line of Fig. 14) a figure " 1 " and place it in the left of the stick with the nick upward, beside it is placed a nought, then a space, then a small p and t, and a full stop. Next comes a thick space, then the word OLD, then another thick space, then the word STYLE, and a full stop. This will occupy about half the line, and the rest of the space must be filled up with quads and spaces. Fill up with quads first, and then if there is a small space left the various spaces must be tried in order to make the line tight, and they should be placed next to the full stop rather than at the extreme end of the line, as small spaces in that position are likely to drop out when the type is moved. This filling up with spaces is called *justifying* the line, and in order that the type should lock up nicely in the chase each line must be treated in exactly the same way. Thus if some lines are jammed very tight and others left a trifle loose accidents will happen later, and in order to test the accuracy of the justification the brass on which the type rests in the stick should be tilted at a slight angle from the bottom of the stick and then lowered again. If the line is too tight there will be a difficulty in doing this, and if the line is too loose the type will fall down again with the rule. If however the line is just right the type will remain at the angle to which it was tilted, with a very slight sag in the middle.

Having accomplished this, and the line being read to make sure that there are no errors, another piece of rule is placed on top of the type and the whole lifted out of the stick and transferred to the chase in the

galley. In order to do this successfully the two pieces of rule must be grasped firmly between the thumb and first finger of each hand, the open end of the stick being towards the operator. Then as they are gently slid forward and lifted, the second fingers are placed at the ends of the line in order to prevent the end pieces of type from falling out. If the hands are now bent upward, so that the face of the type is facing the worker there will be little chance of it dropping, as it will be resting horizontally on the bottom rule. It may then be carried to the galley and carefully lowered into place and the two pieces of rule removed, a piece of the 3 in. furniture being pushed against the line to prevent it falling down. This piece of furniture must be left in that position in order to form a gap between the line already set up and the next line, which may now be composed.

As each line is set up transpose it to the galley, placing a piece of furniture after each, and when titles for all the founts are thus in place add some more furniture below so that there is just enough room for a pair of quoins. Put these in position and another pair at the side so that the whole appears as in Fig. 16. Press the quoins together with the fingers, and if all has been properly done the type will not drop when the chase is lifted a trifle at the bottom edge. If it does do so do not try to rectify the matter by packing bits of paper or lead at the end of the faulty line but discover the source of fault. It may be due to a piece of furniture being too long, and it was for this reason that the reader was advised to test them all in the stick when cutting them. If one of the lines is really loose it should be taken out and reset in the stick, this being

a much more satisfactory and workmanlike manner than trying to justify it in the chase.

If all is correct place the galley containing the chase (with the quoins still finger tight) on the imposing surface and slide the galley away so that the type rests on that surface. Now take the planer and with it gently tap down the type so that their surfaces are dead level, and then tap up the quoins with shooting stick and hammer. Make sure that all the type is down level but do not knock the planer too hard or the faces will be injured, and do not quoin up too tightly or the chase will be sprung. Lift up the chase gently to see that all is secure and then place it on the bed of the printing machine. Whenever a chase full of type is moved it should be lifted by the top edge and carried in a vertical position. There is then no chance of the whole collapsing.

ꞏ Ink the ink-plate of the machine from the glass (or whatever was used), already prepared by means of the small roller, and then run the machine roller over it several times, bringing it finally over the type itself. If the platen is ready packed a sheet of paper may be placed on it and an impression taken by pressing over the lever. Before doing this, however, it must be seen that the gripper fingers are well to one side so that they will not be pressed on the type—an important point that must be watched whenever the machine is used or some of the type will be irreparably injured.

When the lever is brought back the print may be examined and all defects noted. Presuming that there are no errors due to misspelling, etc., it will be probable that there is some defect in the printing itself, and this may be due to the fact that the packing on

the platen requires adjusting. This packing must be of
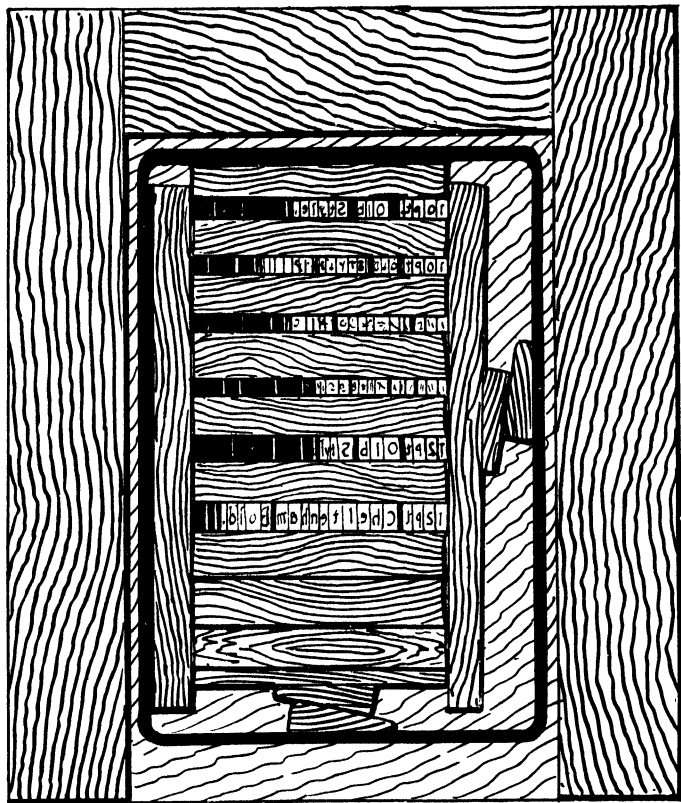such a thickness that when it is pressed against the

FIG. 16. TYPE QUOINED UP

type it will touch it evenly all over. Thus if the
impression just taken is heavy near the top and very
light near the bottom or hinged end of the platen, a

little more packing is required, but if it is heaviest
nearest the hinge a little less is wanted. If the differ-
ence is very considerable the packing may be the thick-
ness of a piece of card out, but if it is only slight a sheet
of paper may be added or removed as the case requires.
In either case the printer must experiment until the
correct packing is obtained, and after each alteration
a proof is taken and the result examined. Even when
the ink on the proof is of an even blackness there may
be too much pressure either at top or bottom, and this
will be seen if the back of the paper is examined, for
that part will appear raised owing to the type being
forced into the paper. A slight adjustment will rectify
this, and the proof should then appear evenly printed
and the back of the paper perfectly smooth (or very
nearly so).

The packing is called the tympan, and the top sheet
is called the "make ready," and when the above
adjustments have been made the platen is pressed
against the type so that an impression is printed on the
make ready sheet itself. This shows where the print
will always appear, and round it we may mark where
the edges of the paper on which we are going to print
must come. Thus if the paper is to be an inch bigger
all round than the type surface, we mark a horizontal
pencil line on the "make ready" an inch below the
bottom line of print and a vertical line an inch away
from the beginnings of the lines. On the bottom line
thus drawn two pins are inserted on which the paper
may rest. These gauge pins, as they are called, may be
purchased or may consist of ordinary pins bent to the
shape of Fig. 17. The gripper fingers are then loosened
and shifted so that they will grip the edges of the paper

while being just clear of the type, and the final impressions may now be taken by placing a sheet of paper on the gauge pins so that the right-hand edge comes against the side line marked on the tympan, pressing the platen against the type, and raising it again.

There is one trouble that may crop up here that has not been mentioned, and that is the case of one or two letters not coming out clearly. This is evidently because the type at that spot is not high enough or because the packing is not thick enough, and is remedied thus. The faulty place is marked on the impression on the tympan and a

Fig. 17

piece of tissue paper is pasted thereon. This method of making the packing a little thicker in places is known as spotting up, and must be done as little as possible. Use very thin paper and tear it roughly to size rather than cut it, so that the edges will not be too sharp. If this spotting up is overdone matters will only be made worse, for the lettering round these patches will in their turn become faint.

There should be little or no trouble in getting an evenly black impression when the type is spread out as in the example just set up. It is when the mass of type is large and close that difficulties are likely to occur.

As the papers are printed they should be laid out to dry. If glossy paper is used this will take some time, but with a porous paper the ink is quickly absorbed and the sheets may be laid in a pile as they are printed. In order to avoid sheets being " set off "—that is, soiled by contact with other sheets wet from the press —care must be taken to use as little ink as possible,

and in particular cases they may be interleaved with plain sheets when placed in a pile, if there is no room to lay them out separately. The " make ready " on the tympan should also be pasted over with a " set-off sheet," so that the under side of the paper being printed will not get soiled.

When enough copies have been printed off, the chase is taken from the machine, cleaned, and laid in the galley, and the quoins are loosened so that the type may be taken out and distributed. This will best be done by the beginner in the following manner. With the thumb and first finger of the left hand lift out the last word of the bottom line, and *read it*; then take the letters one by one with the other hand and place them in their proper places in the correct cases. Do not throw them in or they may be injured, and the reason for emphasizing the reading of the word lifted out is that it is easier to read an inverted word than a letter. It requires some practice to tell the difference between a " b " and a " d " or a " p " and a " q," but knowing the word in which they occur will prevent mistakes in distribution. The best way to clean the type is to dab it with a rag moistened with petrol or paraffin (the former is the better, but the latter is the safer to use), and the ink plate and roller must also be cleaned in the same way after each job is completed.

Now let us examine a letter-heading (Fig. 18) and see how it should be set up. For this the reader may use any type he fancies, and he may like to produce it with a coloured ink, but these are details outside the general method itself which is similar to that of the previous example except that more care has to be taken with the justification of each line, and the whole may

be set up in the stick and transferred complete to the galley.

A rule is placed in the stick, and on it is composed the first line, starting from the left. After the number place a comma and a thin space, and after *road* insert a comma, and then fill the line up as far as possible with quads. If the line is not tight (as before explained) insert a space or spaces after the last comma in order

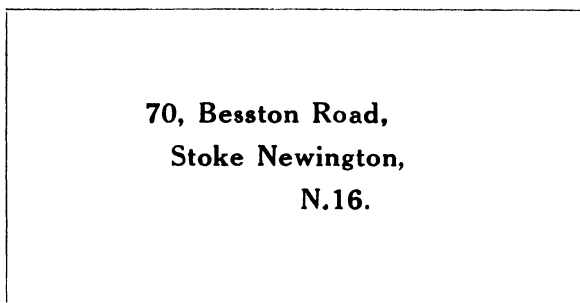**70, Besston Road,**

Stoke Newington,

N.16.

FIG. 18. LETTER HEADING

to make it so. On this line place three leads, and then start the second line with an em space and place a thick space between the two words, and fill up the line as before. If there is a third line as in the illustration it must be further indented so that it comes in proper position with regard to the other lines, and there is no need for spaces after the full stops here. Three leads must also be placed on the second line before setting up the third, and then a piece of rule is placed on top and the whole removed to the chase in the galley, which has been prepared as in Fig. 15. Furniture is then placed below so that the whole may be quoined up. Before printing a proof had better be taken thus:

Lightly ink the type with the small roller. Place a
piece of soft paper (blotting-paper will do) on the type
and holding it in position with one hand press it firmly
on the type with the thumb of the other hand. The
letters will be pressed right into the paper but that does
not matter so long as we get a clear impression. If any
alterations are needed loosen the quoins and carry
them out, being careful not to alter the length of any
line in any circumstances. Thus if there is a mistake
in spelling, the wrong letter must be removed and
replaced by the correct one, and if they are of the same
thickness the length of the line remains the same. If
however, a thicker letter has to be inserted, a space
which added to the letter removed will be of equal
thickness, must also be removed. On the other hand
if a thick letter is removed to be replaced by a thin
letter, a space must be found that placed with the
latter will equal the former. A space to be removed to
make room for a larger letter can be taken from the
end of the line, and if there is none suitable a quad
must be taken—if we want a middle space we may
take a two-em quad and replace it by an em space and
three middle ones, thus making the line one middle
space shorter, which is what is required. A space to
be inserted is simply placed among the spaces already
at the end of the line.

When the lettering is correct one may wish to alter
the arrangement in some way, for it is not easy to
imagine how a thing will look when setting it up, and
the final proof will depend on the taste of the worker
himself. If the bottom line is considered too far to the
right a space or two from the left may be transferred
to the opposite side, or vice versa. If more space is

desired between the lines more leads may be inserted,
and so on; and if a rough proof is taken after each
alteration the tyro will quickly get into the way of
visualizing correctly what is set up in the stick.

When considered satisfactory the forme is locked up
and placed in the machine, and the usual preparations
made—gripper fingers adjusted, impression taken on
the " make ready " and spotted up if necessary, gauge
pins inserted and side line marked, and a set-off sheet
pasted over the make ready. If it is found that the
note-paper to be printed cannot be placed conveni-
ently on the tympan in order to get the address in its
proper position, the type will have to be adjusted by
altering the size or position of the furniture surround-
ing it, and this should be ascertained before making
ready.

It is also important to see that the type is not pressed
into the paper. Reduce the packing if necessary, or
adjust the screws at the back of the bed or platen of
the machine if it has such an arrangement. If an
"Adana " horizontal machine is used one of the type-
high blocks used in making the composing stick (see
p. 17) should be placed among the furniture about
3 in. below the type heading. This will equalize the
pressure of the lever over a large surface and thus
secure a clean surface print. The block will be inked
by the roller and will of course come out across the
middle of the make ready sheet as clearly as the
heading itself, and a frisket must be arranged to
prevent this coming on to the note-paper. A frisket is
simply a piece of paper pasted across the gripper
fingers in such a position as to cover anything in the
forme that one does not wish to be printed. Thus a

thin, tough piece of paper must be fastened across the grippers so that it will take the impression of the type-high block.

This method should be adopted whenever printing has to be done only near the edge of the platen, whether at the top or the side. In the latter case the frisket across the grippers will also cover the type, but it is pasted across in the same manner and then an opening is cut in it to allow the lettering to print. Printing in two colours is done similarly, as will be explained later.

Those readers who have occasion to use stamped addressed envelopes may print them off in the same way as the letter-heading except that the name must be added, and as the address will this time be in the middle of the chase the type-high block need not be used, especially as a slight indentation will not be noticed in this case. However, the printer may please himself, and if he is fastidious he may spend as much time and care on this job as on the former one.

An addressed envelope should be done in rather large type (12 point is suitable), but a visiting card requires more delicate treatment in style and in printing off. The reader may use any small type that he has, although, if there is any likelihood of much of this work being required by the family circle, a fount of type specially suitable for such a purpose might be obtained.

If a rather heavy card is fancied the name may be done in 10 point Cheltenham bold and the address in 10 point Old Style; or the name in 10 point large and small caps., and the address in upper and lower case type. That illustrated (Fig. 19) is done in 10 point Italic and 6 point Old Style. The name is set up first and placed in the middle of the stick. On this is placed

a piece of furniture and then the address is prepared. First measure the length of the card to be used, and if it is the usual 3 in., the address should be indented one em and set up. It will then come near the bottom edge of the card and a trial proof may be taken to see its exact position, and if it is not quite low enough one or two leads must be inserted between the name and the address. The former should come right in the

I. C Bedker
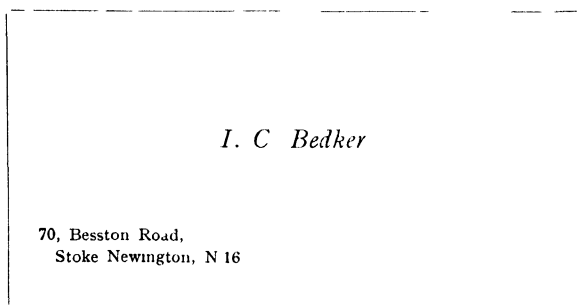
70, Besston Road,
   Stoke Newington, N 16

FIG. 19. VISITING CARD

middle of the card and the latter in the bottom left-hand corner; but when setting up in the stick the address will of course be on the left above the name—the whole being upside down. If a bigger card is used the name must be shifted to the right in the stick in order to allow for the extra length, the exact distance being ascertained by measurement.

In printing this great care must be taken to avoid an indented impression, and as the type-high block already used will come in contact with the grippers (for they must be less than 3 in. apart to catch the edges of the card),the other one that was made must have its ends lowered to allow for this.

Although machine ruling is not done on the printing press, but by an entirely different method, the amateur will no doubt require forms now and then which will consist largely of lines, and these he may prepare with the brass rule. Thus any such work as Fig. 20 can be set up in the stick, and for such a purpose a 6 in. stick should be constructed. In this the title is set up and centred, a few leads placed on it, and then a brass rule (thick edge uppermost). When this is placed in the galley the smaller headings may be set up and arranged according to requirements, and on this line of type a rule is placed fine edge uppermost. Either reglet or quads may be placed between the lines of dotted rule until they are wide enough apart for writing purposes, and these lines may be in 6 in. lengths or composed of two of the 3 in. pieces.

When printing these make the tympan packing of hard card, as this will tend to prevent the rule from cutting deeply into the paper. This cannot be avoided altogether, but a gentle use of the lever will make a great difference.

Fig. 21 gives a more complicated ruling, the vertical lines being short pieces of rule placed between the quads which separate the horizontal lines. This may be set up in the 6 in. stick, or it may be done in two halves as it is to be printed on a card to fold down the middle. It will be noted that one of the column headings is in two lines and the other headings are exactly between the two thin lines. Being in 10 point the words *Opponent's Signature* take up twenty points— the measure of the space between the pieces of thin rule. *Games*, *table*, etc., occupy ten points, so that there must be five points above and below each word.

SEEDLINGS

Date	No	Name	Result.

Fig 20. A Form

The en spaces of this fount are of course five points thick, so they are laid sideways on the brass rule, and on them are placed the first four headings, and on top of these is placed another row of en spaces. Then the two-line heading is set up, followed by a double row of em spaces up to the beginning of the other half of the form. Fig. 22 shows the general arrangement of the spaces.

The number of games should be carried down the page as far as necessary, and then the places for the final totals inserted. For the short lines at the foot and under First Half, etc., pieces of rule may be cut to length and inserted, and beside them are placed leads so that there is a complete line one and a half points thick composed either of rule or leads. By adopting this method whenever underlining, etc., is required the printer will gradually accumulate an assortment of short lengths of rule and leads which will be varied enough for any such purpose. They do not require very accurate adjustment, especially as in most headings there are sure to be other leads, and all that is required with the rule is sufficient lead strip to keep the forme square and the lines rigid.

The dotted line level with the top word " Name " illustrates another method of inserting rule. The word itself is in 10 point, but is followed by 8 point quads, and the space below is occupied by the dotted rule which is 2 point, and thus comes flush with the type. However, it will be hardly worth while for the small worker to have two sizes of rule, and the method is only mentioned here in order to show how varied are the combinations which may be used. There will always be plenty of scope for the ingenuity of the printer, who

Name

FIRST HALF						SECOND HALF				
Games	Table	Tricks	Total	Opponent's Signature		Games	Table	Tricks	Total	Opponent's Signature
1						1				
2						2				
3						3				
Total						Total				
						Grand Total				

FIG. 21. WHIST DRIVE CARD

Games	Table	Tricks	Total	Opponent's Signature
1				

FIG. 22. WHIST DRIVE CARD SETTING OUT

will enjoy solving little difficulties in spacing and arrangement and devising new ideas in the display of his type.

Another ruled form is shown in Fig. 23 and may be adapted to any similar requirement and enlarged as

LAUNDRY

— — —

Week ending
_____

No	Articles	s	d
	Sheets		
	Pillow Slips		
	Table cloths		
	Curtains		
	Shirts		
	Vests		

FIG. 23. LAUNDRY LIST

necessary. It should be composed in the 3 in. stick, the heading being centred as usual. The small headings are in 6 point Old Style, but any other size or style may be used, the reader being guided entirely by his own taste and the materials at his command. When the heading has been set up transfer it to the galley, and then commence on the names of the articles required on the list, starting each line with the same number of quads in order to get the words under the title *Articles*. As the type used is 10 point, two leads

were placed each side of these words, thus spreading
the dotted lines out to 16 points.

Fig. 24 shows the use of border ornament. Having
decided on the width and length desired, the top line
of ornaments may be set up in the stick, filling up the

HONOUR TREE

SPORTS

CLUB

MEMBERSHIP

CARD

1928-9

FIG. 24.   COVER OF BOOKLET

unwanted space with quads. The second and third
lines are composed of quads with ornaments above each
end of the first line, thus building up the sides of the
rectangle. The fourth line continues these sides but
has between them (accurately centred) a part of the
title. If some space is required between this line and
the next a few leads may be cut to size or a row of en
spaces on their sides may be used. The rest of the

title is set up similarly, centring the words and getting the side ornaments exactly in line, and then the final row is put in to complete the outline. If 1½ point dotted line is used each side of the Cheltenham Bold, as in the example, eight strips of lead must also be used to bring up a width of 15 points and then a row of en spaces on their sides will bring this up to 20 points so that the last line of ornaments will come level with the sides. It does not matter where these leads and

Christmas Greetings.

All loving wishes from my heart
I send you with this greeting,
May Christmas Day be glad and gay,
With many a merry meeting.

spaces are placed; they may be put where most convenient, but it is obvious that there must be a total of 19 ems between the top and bottom lines of ornaments in order to keep the whole border correctly placed.

Let us now take a more solid mass of letterpress, such as Fig. 25. Poetry is fairly easy to set up because it is a very simple matter to justify the lines as the type will not reach the end of the stick. Start on the title and underline it, and on it place a couple of leads. Then start the first line of the poem with a 2 em quad, set up the words with a thick space between each, and fill up the rest of the line with quads and spaces. Place a

lead on top and start the second line with a 3 em quad. The third line will commence like the first, and the last line like the second, so that they will be under one another alternately. If ornaments of some sort are used beneath they should also be set up in the stick and spaced out regularly, and when the whole is in the chase it may be spread out by putting extra leads between the lines, and reglet above and below the stanza, so that it is somewhat separated from the title and the tail-piece.

The reader would be well advised to set up two or three lines only at a time until he gets used to handling the type, for there is a knack in lifting it from the stick to the galley, and until one has thoroughly mastered this process " pie " is very likely to be formed. If the work is composed two lines at a time and transferred to the galley there is much less chance of this happening, and if it does do so there is not much " pie " to sort out. Practice will make perfect and then the whole stick may be filled before the work is put into the galley, but caution in the first stages will save a great deal of annoyance.

When the lines run on as in Fig. 26 more work is required to justify them, for it is seldom that the words will exactly fit the stick without some adjustment. The general rule is to put a thick space between the words and then insert thin ones if the line is a trifle short, or to change them for thinner ones if there is not enough room for the last word of the line. As the spaces will seldom be equal the wider ones should follow a word that concludes with an ascending letter (such as l, f, h, etc.), or precede a word commencing with such a letter.

In the illustration each rule is indented an em and an en, and the first word is Cheltenham Bold while the remainder of the type is Old Style. Setting up the first line with a thick space between the words (a middle space after the comma), it will be found impossible to finish " Sundays," and to put the whole word on the next line would mean much spacing out in the

LENDING LIBRARY

RULES

Open from 8 to 9 each evening, except Sundays and Bank Holidays.

Books should not be retained for more than fourteen days without notification being given to the Librarian.

Members will be held responsible for books in their possession and any loss or damage must be reported immediately.

Fig. 26. Lending Library Rules

first. It is thus broken into two syllables and a hyphen placed at the end of the line. In order to make the line the correct length two thin spaces are required, and these may be placed in front of " from " and " Sun- " respectively.

The next line may be set up and justified after the point. The third line will be found to be a little more than an en space too short so that three thin spaces will be required, and may be inserted after " should," " not," and " retained." If line four is a little too tight

the space after " days " may be changed for a middle space ; and so each line is justified.

When a proof is taken and it is found that letters require altering, the spaces also must be altered in a similar manner in order to avoid making the line longer or shorter. Fig. 27 shows the bottom paragraph as it was first set up—with the word " and " omitted. In order to insert this the last word of the line—" be " —was first transferred to the bottom line, sufficient spaces being taken therefrom, and carefully compared

> **Members** will be held responsible for books in their possession any loss or damage must be reported immediately.

<p align="center">FIG. 27. LENDING LIBRARY RULES</p>

with the thickness of the " b " and " e." This altera- tion did not allow enough space for the word " and " so that it was necessary to remove the thin spaces which had been placed after " in " and " any." These with the space after " must " (which of course had to be removed to bring that word right to the end of the line), and the word " be," were exactly equal to the word " and," together with an extra space to insert with it.

Sometimes in composing a word is doubled and in this case a reverse process to the above has to be carried out. A word has to be transferred from the beginning of one line to the end of the previous one in order to fill the gap caused by taking out the word not wanted, and the extra space is thus spread over two (or perhaps three) lines which are justified by the insertion of as many thin spaces as necessary. The

way to avoid all this trouble is to read each line as it is composed in the stick, for alterations may then be made quite easily.

With regard to proof reading, which is not half so easy as it seems, it would be best for the printer to get some one else to look through his proof before printing off the copies, for it is most easy to overlook some small but vital error such as an inverted letter, a wrong punctuation mark, or a mistake in spelling.

Some specimens of types in addition to those shown in Fig. 14.

10 pt.	Venetian.
12 pt.	Antique.
14 pt.	Caslon Old Face.
14 pt.	*Garamond Italic.*
14 pt.	Garamond.
14 pt.	*Cheltenham Italic.*
14 pt.	𝔒𝔩𝔡 𝔈𝔫𝔤𝔩𝔦𝔰𝔥.
18 pt.	**𝔒𝔩𝔡 𝔈𝔫𝔤𝔩𝔦𝔰𝔥.**
18 pt.	*Garamond Italic.*
18 pt.	Garamond.

CHAPTER IV

METHODS OF ILLUSTRATION

WITH the enthusiastic amateur the question of pictorial illustration is sure to crop up sooner or later, for the need will be felt for some relief from the type and the lines and borders illustrated in the previous chapters.

The subject may be divided into two sections— illustrations done in the press and those done without its aid. The latter may be done in various ways, the most artistic work being done by hand by pen or brush. This method is only practicable when single copies are wanted, such as for greeting cards, etc., when the drawing is mounted on a cover and a printed sheet with the greeting is inserted and the whole bound with silk ribbon or cord.

Photographers may use their prints for a similar purpose, and for producing a number of similar illustrations this process will also be very useful. A guide for a Nature Ramble or an account of a School Journey might well be illustrated with photographs, and if only a dozen or so copies are required the plan is quite practicable. In this case arrangements must be made before printing the booklet in order that sufficient space may be left for the insertion of the photographs in suitable positions.

For simple sketches and plans the hectograph will prove useful, and even for such things as Christmas cards many will find it serviceable. By its aid about

fifty good drawings may be duplicated from the original, which must be prepared with special ink sold for that purpose. Various colours may be obtained in hectograph ink, so that ornamental work may be done with the pen for which the illustration must be suitable. If the design is original it may be sketched in pencil on rather smooth paper, and then inked in; or if it is desired to copy a picture this may be done with the aid of tracing and carbon paper, and then inked. The prepared drawing is then placed face downwards on the hectograph (which is a gelatinous composition in a tray) and left for two minutes and then removed. The ink will have been absorbed by the jelly, and when fresh pieces of paper are pressed gently on to this impression they will take up some of the ink and thus duplicate the first drawing.

When taking off copies from the hectograph care must be taken to get them all in the same position so that they will register with any type that is to be printed on them later, and any poor copies should be saved as they will serve for experiments in getting the correct position on the tympan. Fig 28 shows what may be done by this method, a fine pen being used for the drawing and a smooth paper used for the reproductions. Any fancy type or border may be utilized and it may be gilded as soon as printed if required.

Gilding is easily done on glossy paper, and although special ink is generally used for the purpose it may be done with black. All that is required is some gold, bronze, or copper powder, and a small piece of wadding. As soon as the paper is printed a little dust is taken up on the wadding and dabbed all over the ink, and the surplus shaken off. Then when the ink has had time

to dry thoroughly the paper is dusted lightly with a camel hair or other soft brush. Black ink has a tendency to darken the powder or to show through it, and it would be better to use a red or yellow ink, but one or two experiments will show if this is really necessary.

With regard to illustrations which may be printed in the press, the reader will wish to know of a method of preparing his own work, but it will be easily understood that elaborate drawings cannot be undertaken as they require special machines for their preparation. The oldest style of illustration is the wood block, for which purpose a piece of boxwood is made type-high, and its top surface cut away in such a manner that only those parts required to print are left at the original height, and thus take the ink and give an impression just as type does. Those who wish to try this work must be referred to special books on the subject, and although it takes much time and skill it will be found a very fascinating hobby.

GREETINGS

FIG. 28

The usual method of illustration at the present time is with line or half-tone blocks, the latter being outside our present scope, as they require very good machinery in order to reproduce well. The former are very useful and have already been mentioned on

page 20, but etching is a method by which readers may produce their own designs.

Etching in zinc will afford a ready means of doing such work on a small scale, and the materials are cheap enough to allow of plenty of experiment with the process. It consists simply in covering a piece of zinc with an acid-resisting material according to the design required, and then placing the metal in an acid bath until the parts not required in the print have been eaten away to a depth sufficient to prevent their being printed.

The following are the materials required: (1) Some small pieces of perfectly flat zinc at least gauge 16—in fact the thicker the better. If a large piece is obtained it must be cut to the sizes required with a hack saw and the edges smoothed with a file.

(2) A few pennyworth of hydrochloric acid (spirits of salt). This will corrode most metals, and is best used in the open air or in a well-ventilated shed. When the zinc is dissolved a poisonous compound is produced, so that it must on no account be left about in the house.

(3) A little Brunswick black and some turpentine. Any similar paint will serve the purpose, the quick-drying stove and cycle enamels being very suitable as they quickly harden.

(4) A small earthenware or glass dish in which to immerse the zinc plate. Probably an old jam or pie dish may be captured for this purpose.

(5) A cheap camel hair brush, and a good very fine artist's brush. No 0 is the size to obtain.

We are now ready to produce a simple block such as the initial " C " (Fig. 29) which, like ordinary type,

must be made backwards. It will, therefore, be neces-
sary to make a tracing of the letter, and then to turn
the tracing paper *face downwards* on to the zinc, and
to mark it thereon by means of carbon paper. Before
doing this cut a piece of zinc to the correct size (shown
by the outline), and clean it by wiping it on both sides
with a rag moistened with the acid and then thoroughly
rinsing it. Its surface will then be very
slightly rough, and will take the required
outline from the carbon paper.

FIG. 29

Now take a little paint in a small saucer
and thin it with a drop or two of turps so
that it is easily workable with the fine brush,
and with this paint in the letter on the zinc, keeping
the edges clear and firm. Then paint the whole of
the back of the plate. This paint will resist the acid
so that none must be allowed on the zinc except on
the back and on the letter itself; any other must be
thoroughly cleaned off with a knife. When this has
been completed stand it on one side until it is dry,
and then pour enough acid and water (about half
and half) into the dish to just cover the zinc, which
must be immersed in it and gently rocked. As the
unpainted metal dissolves bubbles of gas will collect
on its surface, and these must be removed either by
rocking or by lightly brushing with a feather.

When the acid has well eaten its way into the zinc
the letter will be found to stand above the general
surface of the block, which may then be thoroughly
washed, dried, and cleaned with turps. Holes must be
drilled at the top and bottom of the plate with a pin
drill so that brads with which it is secured to a wooden
block (in order to make it type-high) will be below the

surface. These holes are shown in Fig. 29, above and below the letter.

Fig. 30 shows another method of etching. For this the whole plate is covered with a thin film of paint, except a strip at the top and bottom for the nail holes, and when it is quite dry lines are cut right across the whole of the sky with knife or rule. Cut down to the zinc but not into it, e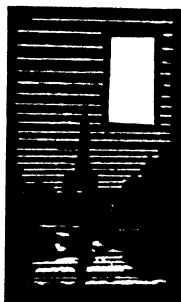specially behind the trees and the steeple, or they will show in the finished work. Now with the fine brush paint in the landscape and the border round the opening and the outside edge, and with a knife scrape away patches of paint to form the white streaks in the water. This will not require so long an etching as the previous example, for there are no big patches of white to be eaten away by the acid. The white rectangle in the illustration will at first appear as part of the sky, but an opening should be cut in the zinc with a small metal saw in a fret-saw frame, and if this opening is also cut through the wooden base a space will be provided for the insertion of any initial letter as required. The top and bottom pieces by which the zinc is secured to the wooden base may show when a proof is taken, and if so they must be filed down until well below the surface.

FIG. 30

For bigger illustrations (such as Fig. 31) it is necessary to cut away large portions of the zinc or they will print as black smudges in the picture. *B* shows how the metal was cut away round the lines, and fastened by four brads. If, however, no letterpress is required

near the illustration, the zinc may be left intact and a frisket cut with an opening similar to the outer line of Fig. 31, *B*, which will prevent any flat surfaces between the lines being printed. If the zinc has not been etched

Fig. 31

Fig. 31B

very deeply the edges of the plate will catch the ink and come out in the proof, so that they must be filed down sufficiently to clear the roller, and any inner part that causes the same trouble should be cleared with a small metal scraper.

If the zinc is left in the acid for too long a period

the sides of the lines will be eaten into and made ragged, and any fine lines will thus disappear. For this reason a perfect etching has to go through several processes, and is a more complicated business than the average amateur will have time for, but the above method will prove quite satisfactory for small and simple work, such as may often be required. Figs. 32 and 33 are examples of the somewhat sketchy nature of this simplified process, and are subjects that lend themselves to a method in which great accuracy is not attainable.

Lino blocks provide the simplest means of reproduction, as a design may be traced on to a piece of smooth linoleum and cut out with any sharp knife. Thick plain hard lino is best for this purpose, and its surface must be quite flat and smooth. Special tools are also made for this work, the best kind consisting of small curved and V-shaped gouges of various sizes, but quite good blocks may be made with an ordinary penknife, and skill in lino-cutting may be quickly acquired by practice on any odd bits of linoleum.

In order to print the block in the press it must be mounted on wood so that it is type high, and the design should be chosen that will bear the heavy pressure of the machine. This rules out the more delicate line work, but silhouettes and massed designs make very suitable subjects. The desired drawing is traced and transferred to the lino, and if any lettering is included care must be taken to reverse the drawing on the lino. If thin tissue paper is used for the tracing it may be pasted face downwards on the lino, but if proper tracing paper is used it will not stick, so that it must be transferred by the use of carbon paper. If the

lines do not show up in this case a piece of wet chalk should be rubbed on the lino and the tracing made on this when dry. The cutting should be fairly deep (but

FIG. 32. A BOOK PLATE

FIG. 33

not deep enough to cut up the fibres on which the linoleum is made) or parts that are not wanted will print; and several proofs should be taken at intervals during the cutting in order to see how the work is progressing, for once too much is cut away the block is

spoiled and another will have to be started. The easiest way to take a proof is to ink the block with the small hand roller, and then to place a piece of paper on it and rub the back with a bone paper knife. Do not be disappointed at the appearance of the first proof. It will probably be not at all satisfactory but further work will improve it enormously. A lot of the parts that should appear white may appear covered with streaks, these being the ridges between the knife cuts, and they may easily be cleared away. Some of these unwanted lines are also due to the uneven pressure in taking the proof, and will not appear when printed in the press, where the platen gives a perfectly even pressure.

Before the block is quite finished it should be mounted on a piece of wood of the correct height and a trial proof taken in the machine. This will give an exact impression that may be finally touched up and finished.

If the block (and this refers to zinc etchings also) is to be used with letterpress its wood base must be cut perfectly square in every direction or it will not lock up properly with the type, and it must also be exactly the same height as the type. If it is a trifle too high a shaving or two must be taken off the back of the wood, and if it is too low a piece of paper or thin card should be glued underneath. If only a very slight adjustment is required resource may be had to spotting up, and it will probably be found most satisfactory to have the block just a shade higher than the type so that a good pressure may be used in order to bring out the design clearly without impressing the type into the paper.

The lino requires much more ink than is necessary

for ordinary letterpress, and this point should be borne in mind when taking proofs. For this reason also it
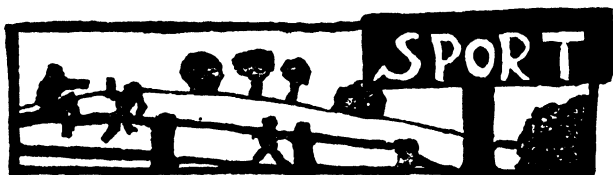

FIG. 34

FIG. 35

FIG. 36

has been suggested that the block should be a trifle higher than the type, but if it is to be printed by itself more ink than usual may be used. Thus if it is desired

to head the page of a club or school magazine with some such sketches as Figs. 34-6, they may be printed first in green or other coloured ink, the article being printed afterwards in the usual way. If they are done with the article they should be mounted on blocks the length of the line so that the type can be locked up with them without any trouble. A block like Fig. 37 that is to be inserted in the body of an article should, as above stated, be carefully squared and set up in the composing stick with the type.

FIG. 37

The frontispiece shows a larger design. It may be done with green ink on a coloured paper, with the title inserted afterwards in fancy type. If a large number of these is to be produced the ink plate must be constantly fed with ink from the hand roller or patchy copies will result.

The next illustration (Fig. 38) is suitable for the book plate of a music lover. Below the profile an opening has been cut through lino and wood block so that type can be inserted; in this case the name of the musician. If this is done the lino should be
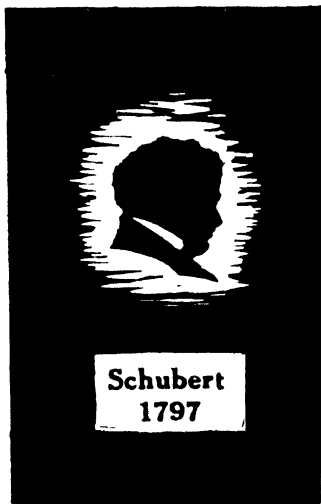
Schubert
1797

FIG. 38

cut away from the opening first in order to prevent any jagged edge. Two or three holes should then be bored through the wood with as large a drill as possible, and then a rectangular opening perfected with a chisel. The sides of this must be quite clean and square or the type will not fit properly and an imperfect print
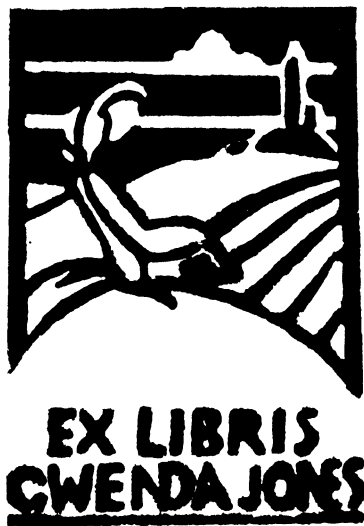

EX LIBRIS
GWENDA JONES

FIG. 39

will result. The letters must be fitted tightly with spaces and pieces of lead and then lightly tapped down level with the surface of the block. Careful adjustment will be necessary in this case in order to bring out both type and block clearly. The lettering may, of course, be cut in the lino itself, either words, as in Fig. 39, or a plain initial, as in Fig. 40.

These blocks should be handled carefully, for their

surfaces are easily injured and any marks will show in the print. The roller and machine must also be kept perfectly clean and free from dust, for if a spot of grit or hard ink gets on to the block it will show in the print

FIG. 40

as a circular white spot. The blocks should, therefore, be well cleaned after use, and if good prints are required a smooth paper must be used, as small pieces of fibre from a rough paper tend not only to clog the ink but to get on the block itself.

CHAPTER V

HAVING discussed the general methods of using the press, type, and accessories, we may now enter into the details of producing the finished article, which may be anything from a label to a small book. The style of the production will depend on the care and taste of the printer, and he will be greatly assisted in the arrangement of his material by a careful analysis of the advertisements, catalogues, and books of the leading publishers, whose printers are highly skilled workmen.

PAPER. The kind of paper used will be dictated by the work to be printed, and for general use a hard matt surface will be found most satisfactory. For special purposes a glossy paper may be used as it gives the work a beautiful finish, but if the letterpress covers a large surface and is close together, a soft porous paper may give the best result.

The size of the paper must necessarily be taken into consideration, and before purchase the table in the appendix should be consulted so that there need be no waste in cutting up. The work should be planned out beforehand, and the paper cut to size, allowing for double pages if these are required.

SINGLE FORMS. Let us take· the single sheet first, and this, if printed on one side only, is called a " broadside." If it is proposed to produce the form shown in Fig. 23, or a similar one for groceries, so that the housewife has only to fill in the particulars, the list

may be made as long as the chase will allow. If it is a 6 in. chase and the heading takes up an inch and each item in the list occupies a quarter of an inch, there will be room for twenty items, which will probably be more than enough. The next thing to decide is how the lists are to be kept. If they are only to be placed in the desk or on a shelf in a pile they may be printed straight off on paper of a suitable size, but if they are to be bound in a book they will have to be perforated at the top so that they may be torn off as required.

PERFORATING. For this purpose a piece of perforating rule must be purchased, this being brass rule with a sharp edge that stands a little above the type. Its edge is not continuous but notched, and as the paper is pressed against it, it cuts a perforation. This perforating rule must, therefore, be placed in the chase with the type about half an inch above the title, and the paper must be arranged so that it is cut about half an inch from the top. When tapping the type down on the imposing surface care must be taken not to knock this rule, and, when printing, a piece of hard card must be placed in the tympan packing on which the rule may bite. If the card does not answer a thin sheet of metal may be let into the packing, but it must be carefully adjusted in order not to injure the rule or prevent the top line of type from printing clearly.

When a sufficient number of copies have been printed they should be placed together in a clamp or press, so that the top edge projects, and if this is well glued and a piece of muslin or paper placed on it, a book similar to a writing pad will be obtained from which a sheet may be torn as required.

A BOOKLET OF RULED FORMS. Fig. 20 shows a form

on which the gardener who labels his seeds may enter the date of setting, the number of the label, the name of the plant, and a brief remark on the result obtained. This would be most handy in booklet form, and as the page should be just over 6 in. wide foolscap folio is the most convenient size to use, it being cut across the middle to give a surface of $13\frac{1}{4}$ in. by $4\frac{3}{16}$ in., and folded to form a double leaf. The ordinary plain exercise book sold for a penny or two will be just the
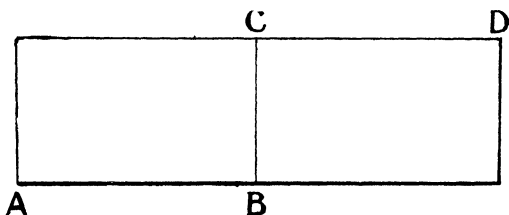
FIG. 41

thing for this, for its leaves opened out are foolscap folio size.

When the form is set up it is printed on one side of the folded sheet and then on the other; the sheet is then turned inside out and the two inner sides are printed. Thus if AD (in Fig. 41) is the sheet roughly measuring 13 in. by 4 in., folded down BC, then all the sheets required are printed first on BD, then on AC; and then if they are quite dry they are folded inside out and all printed on the back of BD and then on the back of AC. Thus four pages have been printed on one sheet, and if three other sheets have been done in the same way a book of sixteen pages has been prepared. In printing two sides of a paper (or four sides in the above case) it is of course important to see that they

are the same way up, a point likely to be overlooked especially when the paper is refolded.

All such forms may be printed on paper already ruled if care is taken to space out the type the exact width of the lines. A ruled exercise book (or paper) may be bought and cut across, and if all the lines are equal distances from the top edges as they should be, a perfect register will be obtained. When the forme is ready one or two trial proofs should be taken to see whether the spacing is correct, and when this is so accurate gauge marks must be made on the tympan and strictly adhered to, or some of the print will be off the lines.

LABELS. The value of the press to the collector has already been suggested, and little need be said on this subject. The philatelist who wishes to make his own stamp album may easily print the headings to the pages with any necessary sub-titles and notes, and although the ruling will probably be too big a job for the machine it may be done by hand or with the hectograph. If the stamps are mounted separately on cards these may be prepared entirely in the press and made to look very neat and imposing.

Collectors of coins, butterflies, etc., may also like to print off labels for their treasures, and although it may be too big a task to produce a label for each specimen, yet labels for the various classes and for the cases or trays containing them will be well worth the trouble of production. They may be printed on ordinary paper in groups and cut up and pasted in position, or they may be done on gummed labels or strips.

BOOK REPAIRS. The press may serve in many ways the book lovers, especially those who haunt the

second-hand book shops and stalls, for often a treasure is picked up from which the title page or the corner of a leaf containing a few words is missing. It would be foolish to tamper with a rare book, but there are many that are of value to the owner alone, and he does not like to see them in a dilapidated state. But with type and paper similar to that of the book he may do quite a lot of renovating before finally rebinding the book, and may enjoy spending quite a lot of time on the work. The original form of the title page, etc., may probably be found by reference to the public library, and if it is too large to get in the press it may be done in two halves, several copies being printed off until a perfect one is obtained. Any big lettering for this or any other work may be cut in linoleum as explained in the previous chapter, and if the letters are mounted separately they will serve for other purposes as required.

If it is proposed to letter the cover without the aid of proper bookbinder's tools, the title, etc., should be set up and printed on the bare cloth before it is made up into the cover, and in this case a soft packing may be used on the platen so that the lettering is impressed. If the ink is rather thick and the letters covered with gold dust immediately they are printed a fair imitation of the usual gilt lettering will be obtained.

Book Plates. Many readers like to have a book-plate, and with a little skill they may make their own with lino-cut, zinc etching, or plain type.

The zinc etching (Fig. 32) gives a quotation from the famous Fifth Symphony,* with a facsimile of the

---

* This symphony is, of course, in C minor, but in order to avoid printing the key signature the first notes of the B flat clarinet have been quoted.

composer's writing below. This plan could be adapted
for any similar book-plate, and might be surrounded by

FIG. 42

a border, if desired, of brass rule or border ornament,
or a fancy scroll worked on the zinc plate itself.

The lino block (Fig. 38) suggests another method,
any profile portrait or drawing being suitable for such
treatment, while the space below might be enlarged to

FIG. 43

include a quotation from the sayings or writings of the
famous person chosen as the subject of the silhouette.
If much letterpress is required it would be better to
cut the lino block off just below the drawing and to
surround the whole with a border of brass rule, with an
enclosure of sufficient size below to contain the extract.
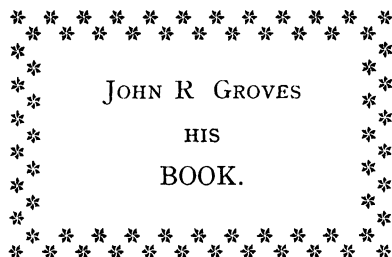
FIG. 44. BOOK-PLATE

Fig. 42 is a pleasing design done wholly in lino, while
a sketch such as Fig. 43 would form a very suitable
book-plate for the nature lover.

Readers not skilled enough to cut their own designs
can purchase a suitable and very artistic block for four
or five shillings, or a book-plate may be designed with
type and ornaments only. Thus, Fig. 44 shows a
simple composition set up in the manner of the club
card on page 43, or for something a little more elaborate
a favourite quotation may be included, as shown in
Fig. 45. For such a purpose special border or ornament
could be purchased, and from a firm that supplies small
quantities of fancy type made up to the customer's
own requirements a suitable and unusual kind of type
may be obtained in order to give the plate a distinctive
style.

A Catalogue. For schools and clubs a library catalogue is almost a necessity, and to produce this careful preparation is needed. The first step is, of course, the listing of all the books and dividing them into various classes, such as Poetry, Novels, Science, Travel, Essays, etc., making an alphabetical list under
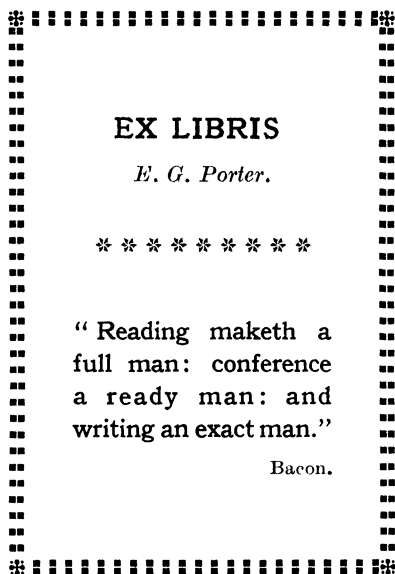
EX LIBRIS

E. G. Porter.

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" Reading maketh a full man: conference a ready man: and writing an exact man."

Bacon.

Fig. 45. Book-Plate

each title. The size of the printed catalogue may then be determined, it running, say, to twelve pages each having a printed surface of 4¼ in. by 3 in. For this the size of paper required is large post octavo, it being folded down the middle as in Fig. 46. This will allow a half-inch margin all round the letterpress, and if half an inch is allowed on each page for the subject title there

will be 3¾ in. for the list itself. Using 10 point type with a lead between the lines, there will be space on each page for twenty-six names, and twenty-five if 12 point is used without leads, or twenty if leaded.

A " dummy " book is then made, this consisting of six of the prepared sheets folded in two to make a book
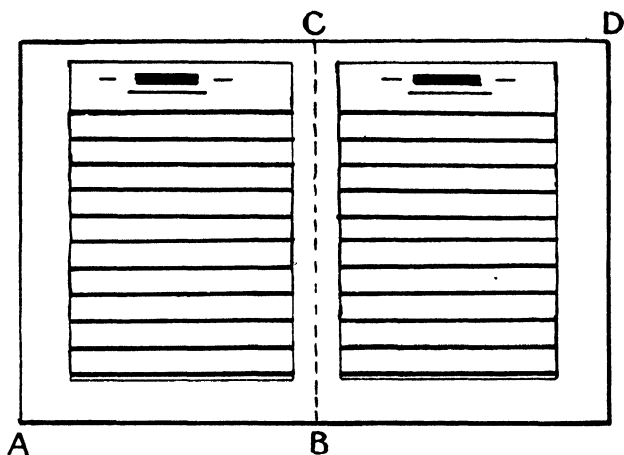
Fig. 46

of twelve pages similar to that required. The pages are numbered 1–12, and on each is written what is to be printed thereon. Thus on page 1, we might have *Science—twenty titles*; on page 2, *Poetry and Drama—twenty-six titles*; page 3, *Poetry and Drama (continued)—seven titles*; and *Essays—fourteen titles*; and so on according to the books in hand. This dummy will be a sure guide when printing the book, for only one page can be done at a time, and it will be most convenient not to print them in consecutive order but in the

following manner. In Fig. 46 if *BD* is the first page then *AC* will be the last. When the paper is folded it would thus be best to print page 1 and then page 12. The back of *BD* is page 2, and the back of *AC* is the last page but one. We therefore turn the sheet inside out after pages 1 and 12 have been done and proceed with pages 2 and 11. Two other sheets are treated in the same way for pages 3 to 10, and with due care and reference to the dummy guide there will be no mistake made.

When composing set the title of the book on the left of the stick and the author's name on the right, so that the two outside margins will be even. If dots—or leaders as they are called—are required in the middle of the line they may be purchased quite cheaply, and they are very useful for many purposes.

Two-colour Printing. For the cover two colours may be employed. If something like Fig. 47 is attempted the lettering should be set up in one chase and the lines and ornaments in another, measuring each part to make sure that they will register correctly. As many copies as are required are then printed from the lettering in red ink, and a few extra produced for experiments in getting correct register for printing the other part in black. If both chases have been set up with the same amount of furniture at top and side they will almost coincide straightway and only a trifling adjustment will be necessary. The spare copies will serve for a few tests, and it must be remembered that we move the paper—not the type—so that if the border prints too high the paper must be shifted higher up on the tympan, and if too much to the right the paper must be shifted to the right, and so on. This

reads rather paradoxical, but a trial proof will show its correctness and the reason for it.

Any colour printing may be done in this way and a few extra copies should always be made with which

St. Matthias' Boys' School.

SCHOOL

LIBRARY

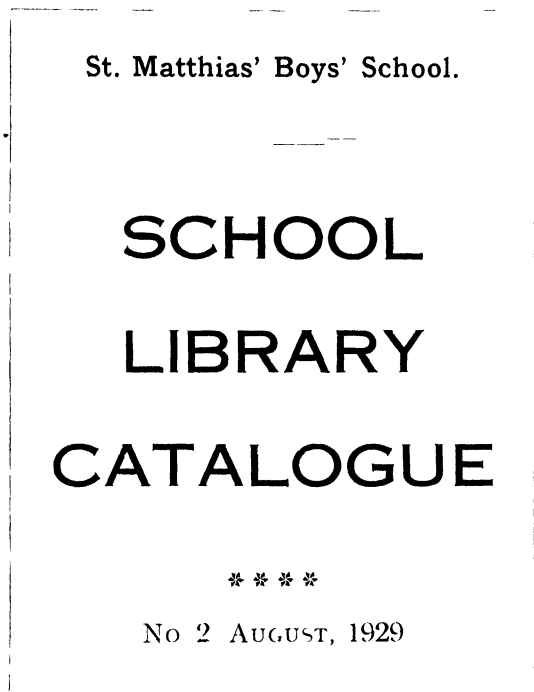# CATALOGUE

❋ ❋ ❋ ❋

No 2 August, 1929

Fig. 47. Catalogue Cover

experiments can be carried out for the second printing. On the other hand the type may be set up altogether in one chase and the process done by frisket printing as explained in Chapter III. Thus, if it is proposed to print Fig. 25 in two colours, it may be set

up complete and when a print has been made on the " make ready " two strips of paper are gummed across the gripper fingers to cover the heading and the tail-piece. The verses may then be printed in black, and although the whole of the type will be inked the top and bottom parts will print on the frisket each time and leave the greeting card blank in those places. In this case the thickness of the 'frisket may prevent the body type from coming out clearly without a pressure too great for a good print, and this trouble may be overcome by pasting a piece of paper of the same thickness as the frisket on the tympan just where the verses print.

When sufficient copies have been produced the frisket is removed and the ink plate and roller and type cleaned. A strip of paper is then fastened across the grippers in a position to prevent the verses being printed, and the red or blue ink is put on the machine and the heading and tail piece printed. The forme in this case is not moved at all, so that perfect registration is guaranteed if all the papers have been placed exactly on the register marks each time.

If it is desired to print the initial letters of Fig. 49 a frisket must be fastened to cover the whole of the letterpress. An impression is then made on this, and openings cut out where the initials come. Then if the red ink is used first these will be printed, a small piece of paper being pasted on the tympan just under these openings to bring the letters out clearly. A mask could then be made to cover these letters while the rest is printed in black, but a better way would be to loosen the quoins and take the initials away, replacing them with spaces. If this is done carefully and the quoins

re-tightened the registration will not have been disturbed, and there will be no need for a rather awkward frisket. This is the best method to adopt for printing initials in a different colour from the body of the type.

GREETING CARDS. The production of greeting cards offers plenty of scope and interest for the amateur, and has the additional advantage of being much more prized by the recipient than the ready-made card. The greeting may be made to suit any occasion, for both words and picture are in the hands of the producer.

The matter of illustration has already been covered, but whether photograph, drawing, or block is used it will require some sort of surround. Suppose we wish to make half a dozen Christmas cards with a photograph on the front. A tinted cover would be most suitable, and on this may be printed a border slightly larger than the photograph, and the words " Greetings," etc., in some fancy type. If a piece of blotting-paper is placed on the tympan to cover the border (but not the lettering) it will be impressed into the cover, and if it is silvered (with aluminium or similar dust) a very pleasing effect may be obtained. If coloured ink is used the lettering may be left in plain ink, or it may be silvered as the border is done, or it may be gilded. (See Fig. 48.)

The inside of the card should be of good paper, smooth or rough according to fancy, but it should consist of a double leaf the third page of which may be printed with any desired wording in a manner similar to Figs. 25 and 49. Here again fancy may dictate the use of a coloured ink, but nothing startling should be used for general work. A suitable colour would be dark blue or green; or chocolate would be

very suitable if some such shade of paper has already been used for the outer cover. The other pages may be left blank or slightly illuminated with a small spray or ornament, this being done with ink of an unobtrusive
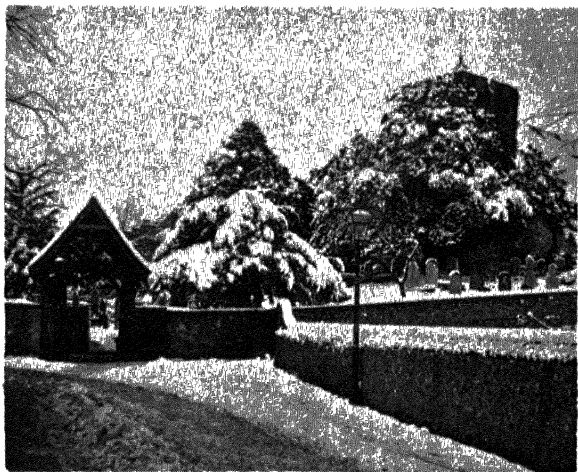
"The saintly veil
of maiden white."

With Hearty Greetings

FIG. 18

tint. (Fig. 50 is a zinc etching suitable for such a purpose.)

COLOURED INKS. Those who would like to experiment in this sort of work should get several small tubes of coloured inks, and mix up various shades as required. Thus all colours may be made more pale by the addition of white ink, and if a little white is darkened with

a touch of black a nice grey ink is obtained similar in
tone to a pencil line. This will be very suitable for
printing under a pencil drawing as there is generally
too much contrast between the grey pencil lines and the
dead black of ordinary printer's ink.

It will be found that colours have not the same
covering power that black has, so that more will have

A MERRY

CHRISTMAS

�֍֍ ֍֍ ֍֍

We'll keep our Christmas

merry still

SCOTT

―•―•―•―•―•―◦―◦―◦―◦―◦―◦―◦―◦―◦―◦―◦―◦―◦―◦―◦―◦―◦―◦―◦―•―•―•―•―
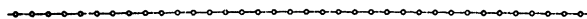
FIG. 49

to be used, and one or two proofs should be taken
before the real printing is done in order to make sure
that the ink is thick and even enough. If the job to be
done is only a small one the roller may be taken from
the machine and the initial letter or ornament to be
done in colour may be inked direct with the small
roller from a piece of glass evenly rolled out with the
necessary tint.

Thus an alternative method of printing Fig. 49 to that previously described would be to set up the whole without the initials, inserting spaces of exact size in their place. The printing would then be done in black in the usual way. The initials would then be inserted and a frisket cut to cover the rest of the type, and the roller removed from the machine. If it were proposed to print these initials in purple a little red and blue ink should be put on a piece of glass and well mixed with a knife and then well rolled out with the hand roller, with which the initials should be inked by lightly passing it over them two or three times.

FIG. 50

PROGRAMMES. The production of programmes will present little difficulty to those who have mastered the previous instructions, the only real trouble that is likely to arise being due to the founts of type not being large enough. It is very annoying to set up nearly a page of matter and then to find that a certain letter has run out. To avoid this it is best to note which are the predominating letters in the programme and then to see if the type will cover these. If Mr., Mrs., or Miss, is to be placed before each performer's name this will run into rather a large number of upper case M's, and this must be prepared for by getting an extra pound or two of the type desired.

If only a small programme is required it may be done on a single sheet, and if this is folded over the general announcement (the title page, so to speak) may be printed on the front half of it. A better arrangement, however, would be to have a double sheet and to print the title, etc., on page 1 and the programme itself on page 3. In any case a wood pulp paper (somewhat like

blotting-paper) should be used, for although its artistic effect is not so good, it will not rustle and crackle when

EASTWELL MUSICAL SOCIETY

ANNUAL PUBLIC CONCERT.

Programme

ST. MARY'S HALL.

MONDAY, AUGUST, 5TH. 1929.   EIGHT P.M.

TWOPENCE

FIG. 51. FRONT PAGE OF A CONCERT PROGRAMME

used as a hard paper will, which will be an advantage to listeners and performers alike.

The front page should be set out boldly with no

close print. In fact as little as possible should be included, for nothing is more annoying than a mass of detail when one only wishes to see the name of the concert hall, the names of the producers or title of the

𝔓rogramme

PIANO SOLO		*The Bees' Wedding*
	Miss J. Browne.	
RECIT. & ARIA		*Honour and Arms*
	Mr. F. Johnson.	
SONG		*Passing By*
	Mrs. C. Angus.	
PIANO DUET		*Marche Militaire*
	Miss Browne and Mrs. Browne.	
SONG		*Hark, hark, the Lark*
	Mr. W. Downing.	

INTERVAL

FIG. 52. INNER PAGE OF PROGRAMME

company, the time of commencement (and the date if the programmes are sold beforehand) and the price. (Fig. 51.)

The programme itself should be set up in two or three sorts of type as illustrated in Fig. 52.

A MAGAZINE. When printing a booklet, such as the rules and other particulars of a club, or a school or club magazine, the work should be planned out as described for a library catalogue. That is, a dummy

should be prepared and the particulars of each page entered according to its position in the book so that any page may be printed as most convenient to the printer. Thus if two or three of the pages are to have coloured

FIG. 53

headings it would save time and trouble if they were all done at one time instead of cleaning the machine and re-inking it with the colour on each separate occasion.

If, for instance, the cover, such as the *frontispiece*, and a page heading such as Fig. 34 are to be done in green; or an illustration like Fig. 53 and an initial block (Fig. 30) are to be done in blue, these had better be done before the letterpress; as had any initials or printed headings that are to be picked out in red.

If only a small page is required—about 5 in. by 4 in.
—demy octavo paper can be used and the two pages
printed together. Thus page 1 is set up in the 3 in.
stick, placed sideways in the chase, and beside it is
placed the last page. Enough furniture must be
placed between them to form the two inner margins
of the pages, so that they print according to the
diagram (Fig. 46). It should be noted that the margins
are not all equal, those at the top of the page being
smaller than those at the foot, and the outside margins
being wider than those on the inside edge of the page.

It has been stated that the closer the type matter
the more difficult it is to get a perfect print, and even
if only for this reason it is best to lead the lines; that is,
to place a strip of lead between the lines of type. The
1½ point leads are as suitable as any for this purpose,
and they must be cut, as emphasized in a previous
chapter, so that they slip into the stick easily without
being too short, or commas, points, and other narrow
type will be left loose, and slide either up or down from
their proper position in the line.

If the lead is inserted in position while composing
in the stick it will enable the next line to be easily
justified, as the type cannot catch on the edges of the
previous line, but if none is used it is usual to slip a
piece of brass rule on top of a finished line, on which
to set the next line, and then to take it out and place
it on top again, so that there is always an unbroken
surface on which to compose.

When printing a book with a bigger page than that
suggested above only one page can be done at a time,
but it should be planned out in a similar manner, and
the work carried out as described for the library

catalogue. For all such work the tympan packing should be rather soft, and may be composed of blotting-paper of a perfectly even texture. This question of packing depends very largely on the machine used, so that the only satisfactory way of solving it is to try various methods.

One defect that may be noticed sometimes when taking a proof is that the type as a whole prints unevenly. That is to say, all the bottoms of the letters appear faint, or all the tops, or one side. This is due to improper quoining up, which forces the type off its feet, so that instead of being exactly vertical with the bed of the machine, it is on the slant and one portion of its face is higher than another. This is easily remedied by removing the chase to the imposing sur-face and examining the furniture, etc., to see if it has been damaged in any way. If nothing is wrong with this or any of the spacing the trouble was caused in the tightening of the quoins. When the type is tapped down on the imposing plate the quoins should be tightened with the fingers, and then, when the shooting stick is used, the quoins at the *bottom* of the lines should be tightened first and then the side ones.

Another fault likely to be noted at some time or other is a slurring or doubling of the print, due to the paper touching the type twice, or to it being pushed along the surface of the type. This indicates that the paper was not held flat and tight against the tympan, and may be due either to the tympan packing being baggy, or to the fact that the gripper fingers require adjust-ment. See that the former is taut and that the latter press the paper firmly against it.

APPENDIX

1. Sizes of Trimmed Papers

	Sheet	Folio	Quarto	8vo	16mo
Post . .	$14\frac{3}{4} \times 12\frac{1}{2}$	$12\frac{1}{2} \times 7\frac{7}{8}$	$7\frac{7}{8} \times 6\frac{1}{4}$	$6\frac{1}{4} \times 3\frac{11}{16}$	$3\frac{11}{16} \times 3\frac{1}{8}$
Foolscap .	$16\frac{1}{2} \times 13\frac{1}{4}$	$13\frac{1}{4} \times 8\frac{3}{4}$	$8\frac{3}{4} \times 6\frac{5}{8}$	$6\frac{5}{8} \times 4\frac{1}{16}$	$4\frac{1}{16} \times 3\frac{5}{16}$
Crown . .	$19\frac{3}{4} \times 14\frac{3}{4}$	$14\frac{3}{4} \times 9\frac{7}{8}$	$9\frac{7}{8} \times 7\frac{3}{4}$	$7\frac{3}{4} \times 4\frac{15}{16}$	$4\frac{15}{16} \times 3\frac{11}{16}$
Large Post .	$20\frac{3}{4} \times 16\frac{1}{4}$	$16\frac{1}{4} \times 10\frac{3}{8}$	$10\frac{3}{8} \times 8\frac{1}{8}$	$8\frac{1}{8} \times 5\frac{1}{16}$	$5\frac{1}{16} \times 4\frac{1}{16}$
Demy . .	$22\frac{1}{4} \times 17\frac{1}{4}$	$17\frac{1}{4} \times 11\frac{1}{8}$	$11\frac{1}{8} \times 8\frac{5}{8}$	$8\frac{5}{8} \times 5\frac{9}{16}$	$5\frac{9}{16} \times 4\frac{5}{16}$
Medium .	$22\frac{1}{2} \times 17\frac{3}{4}$	$17\frac{3}{4} \times 11\frac{3}{4}$	$11\frac{3}{4} \times 8\frac{7}{8}$	$8\frac{7}{8} \times 5\frac{11}{16}$	$5\frac{11}{16} \times 4\frac{7}{16}$
Royal . .	$24\frac{3}{4} \times 19\frac{3}{4}$	$19\frac{3}{4} \times 12\frac{5}{8}$	$12\frac{5}{8} \times 9\frac{7}{8}$	$9\frac{7}{8} \times 6\frac{1}{16}$	$6\frac{1}{16} \times 4\frac{7}{8}$

2. Sizes of Type. The point being $\frac{1}{72}$ of an inch.

6 pt. or Nonpareil,	$\frac{1}{12}$ in.,	the em being	$\frac{1}{144}$ sq. in.	
8 pt. or Brevier,	$\frac{1}{9}$	,,	,,	$\frac{1}{81}$,,
10 pt. or Long Primer,	$\frac{1}{7}$	,,	,,	$\frac{1}{50}$,, (approx.)
12 pt. or Pica,	$\frac{1}{6}$	,,	,,	$\frac{1}{36}$,,
18 pt. or Great Primer,	$\frac{1}{4}$	,,	,,	$\frac{1}{16}$,,

3. To Calculate Type Required to Cover a Given Area, and its Weight. Each letter is treated on the average as an *en*. First find the number of *ems* in a given space by dividing its area by the area of the em of the type required. Thus, to cover 4 in. by 3 in. with 12 point—

> Area of paper, 12 sq. in.
> Area of 12 point em, $\frac{1}{36}$ sq. in.
> Number of ems required $= 12 \times 36 = 432$.

∴ Number of ens required $= 432 \times 2 = 864 =$ Number of letters. A pound of solid type covers about 4 sq. in., so that for 12 sq. in. 3 pounds are required—if every letter is to be used. As however this will never be the case, it is necessary to have at least half as much again of the type as this result gives.

4. The Average Number of Words Contained in a Space 3 in. Long and 1 in. Deep

8 pt.	Solid	84	words
	Leaded, 1½ point . .	70	,,
10 pt.	Solid	66	,,
	Leaded . . .	58	,,
12 pt.	Solid	45	,,
	Leaded . . .	41	,,

5. Spacing.

(1) Paragraphs should be indented one em.

(2) A thick space should be used between each word.

(3) Before the exclamation mark, question mark, colon, semicolon, and final quotation marks a thin space must be pu and also after first quotation marks.

(4) After the colon and semicolon an en space must be put.

(5) After the full stop an em space must be put.

When justifying the line, the spacing carried out as above will have to be modified, generally by adding thin spaces after or before an ascending letter or by reducing the size of the spaces between words that do not commence or end with an ascender (that is a tall letter like " k," " l," etc.).

There need be no space after a comma, and the em space after the point may be decreased if necessary.

6. The chief points to be observed in order to obtain good print are—

Justify all the lines with exactitude.

Get the forme perfectly level on the imposing plate.

See that the tympan packing is correct, and the grippers are properly adjusted.

Use as little ink as possible—well rolled out.

Thoroughly clean all materials after a job is finished.

7. Books Specially Suitable for Reference

	s.	d.
Lettering and Design (Littlejohns) . .	4	–
Plain and Ornamental Lettering (Fooks) .	3	6
Bookbinding and Care of Books (Cockerell)	10	6
Wood-Block Printing (Fletcher) .	8	6
Block Cutting and Print Making by Hand (Dobson)	12	6
Lino Prints (Dobson)	2	6

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